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ABSTRACT

As part of a language arts series for kindergarten through grade nine, this seventh grade guide examines environmental values, concepts, and problems according to a common conceptual scheme: all living things, including humans, are interrelated and interdependent; heredity and environment interact to determine the characteristics of an organism and therefore a population; living things and environments are in a continuous state of change; the world has finite resources and almost infinite demands are made on these resources; and each individual, as an agent of change, has a responsbility to the environment. The guide emphasizes the discovery process of observation and offers a series of environmental activities in the language arts areas of biography, creative writing, journalism, oral communication, poetry, reading, the short story, and spelling. The guide includes background information, a teacher outline, and task sheets for the students. (MAI)

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INDIAN RIVER COUNTY

ENVIRONMENTAL EDUCATION INSTRUCTIONAL GUIDE

Office of Environmental Education
Department of Education
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1975

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LANGUAGE ARTS
SEVENTH GRADE

CS204285

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ENVIRONMENTAL EDUCATION

INSTRUCTIONAL GUIDE

This publication serves as the teaching nucleus for Environmental Education activities in Seventh Grade. The development of this program is a joint effort of teachers and staff of the Indian River County Schools.

This Guide was developed by: Miss Cynthia Palmer - Indian River Middle School

The Introduction was written by Mr. Phil Parisi - Vero Beach Elementary School

We wish to thank the Title III, E.S.E.A. Lee County Environmental Education Project as the conceptual framework for the organization of the guides comes from their work. Also, some of the activities in this guide are from their Interdisciplinary Concepts and Activities Guides.

This publication is one in a series developed by the Environmental Education Program for Indian River County Schools. This series is designed to be used by teachers, students and community members to help them to utilize community resources in developing and teaching environmental concepts, responsibility and in seeking ways to solve environmental problems. All materials are in pilot form and may be revised.

The work presented or reported herein was performed pursuant to a grant from the State Department of Education, Office of Environmental Education.

INTRODUCTION

ABOUT THE ENVIRONMENT

The environment is perhaps the most important complex of systems for man. Yet it is perhaps the most abused. It is becoming trite to say this, but none the less true--unless we change our ways, we will die.

Throughout history men have been able to change. They have done this with much pain and toil. The responsibility of this change has in the past rested on certain individual leaders. Today these leaders must reach a wide population and they must reach them at a time when habits are forming. The teachers of today are the leaders who must take up the cause of educating future populations about the delicate balance we live in.

It seems strange that many peoples of the world (American Indians, for one) need no formal or separate environmental education program for their young. Indian children grow up with the notion that the universe and the environment is one living thing. It must be respected and revered as something sacred. But somehow, modern man has lost vision of that simple concept, if indeed he ever possessed it. Environmental education is a way we can regain a respect that seems to come natural to some populations. It is a way we can be fit for survival and for prevailing on Earth.

In the year 2006, the earth will have doubled the present number of people. Within just 35 years another 3 billion people will be competing for the world's already taxed resources. This is not a problem of future generations, but an existing one that you and your students are already witnessing. As the population soars, crime rates, suicides, and psychological disorders increase at disproportional rates. More species are constantly being added to the endangered species lists, and more wilderness areas are continually being infringed upon by development. Our soil is lost at an alarming rate as it, with a heavy load of fertilizer, is being washed by rains into our precious water supplies.

INTRODUCTION

ABOUT ENVIRONMENTAL EDUCATION

There doesn't appear to be any part of this planet that is not affected by man's hand. Distributing the world's limited resources and minimizing the damage to our planet is going to be difficult. The dilemma is not going to be the problem of any one discipline area; rather, it will touch each of us, in all phases of our lives. Maintaining a quality of life will necessitate new directions in our literature, economics, psychology, food choices, engineering, and even in our daily lives.

Attaining environmental quality is everyone's responsibility, and, as such, it is going to require knowledge on the part of all our citizens. If our students are to make intelligent choices they will feel comfortable living with, they are going to need you to provide them with much of the background information they will need. Our environmental problems demand our attention in every phase of the curriculum so that our students can be prepared to solve this enigma.

Three themes or stages in educating a student to prepare him for environmental choices are: 1) awareness of the environment; 2) knowledge of the environment; and 3) action in the sense of effecting a solution.

Predicting the experiences and knowledge students will need in the future is always a difficult task. However, a few basics are readily identifiable. It seems logical to assume that a person cannot make intelligent decisions if he is not aware of the problem, or even the existence of the area that has the problem. Next, it is important that he understands or has some basic knowledge about the stressed area and the stress factors involved. Finally, once an individual is aware of a problem and has knowledge about it, he must have the tools to effect a solution for the problem.

We have targeted awarenesses at the primary and lower intermediate grades, knowledge at the upper intermediate and middle school level, and action begins in

the upper middle school running through the high school and into the adult community.

The K-9 curriculum guides compiled by various environmentalists are organized around several basic conceptual schemes that were felt to be necessary for a working knowledge of the environment. In addition,these schemes and the activities suggested for their illustration, have been applied as much as possible to the unique problems of Indian River County.

A FINAL NOTE

Education about the environment can too easily become merely an academic exercise, rather than vital interaction. Many researchers have shown that the discovery method of learning allows a more thorough and lasting attainment of the desired principles and it heightens motivation at the same time. The discovery method provides an individual experience and allows success for a wide ability range of students, because it is discovering new knowledge at each student's own particular level.

Your role in the environmental education campaign is important for the student's ability to perceive the subtleties of nature will often depend on your guidance. Most often this is not done through telling the student the names of everything he sees. We need to guide him to the relationships and beauties rather than tell him about it. The student will be eternally grateful to the teacher who helps him observe the natural wonders he encounters. He will long remember the first time he saw a beautiful bird or had someone help him closely examine a delicate wildflower. If we ask him guiding questions which lead him to make his own discoveries we are doing him the greatest service a teacher can do; we are leading the person to the knowledge about using his own brain. We are showing him how to use his capacities of reason and understanding and enjoyment.

INDIAN RIVER COUNTY RESOURCES

The Florida Division of Forestry survey of 1971 showed 44.4 thousand acres of forest land in Indian River County. This report rated the land's most valuable asset as a scenic and recreation amenity. Forestland is also a favorable modifier of the increasingly contaminated environment caused by increased population growth, urbanization, and industrialization and provides relief from crowded city living.

There are five forest types. They are listed here from largest acreage to smallest.

1. Pine flatwoods, characterized by open stand of slash pine mingled with an understory of scrub palmetto and grass.
2. Hardwood and cypress swamps--include tupelo, black gum, sweet gum, some of the oaks singly or in combination, and often associated with willow, ash, elm, water hickory and maple. The soil here is rich.
3. Sand pine scrub--found on higher, drier ridges, principally on St. Lucie sands.
4. Mixed pine hardwood--found in the transition zones along major streams and drainage between the bottomland hardwood swamps and the pine flatwoods. This is a mixture of longleaf and slash pine, associated with willow oak, live oak, sweet gum and hickory.
5. Mangrove forest--along the costal islands and tidal flats, consisting of red and black mangrove in dense thickets along partially submerged lands subject to periodic wash by high tides and brackish estuarine waters.

The importance of natural hardwood, swamps, and wetlands as a natural filter should not be overlooked. Repeated studies and experience elsewhere show that

water delivered through natural drainage tends to improve in quality through the process of self-purification as it flows through and into the forest floor--that spongy, natural filter made up of debris, leaves and partially decayed vegetative duff. Water drained out of any watershed by canal will not show the improved quality of this naturally filtered product.

Although the hardwood and cypress swamps (consisting of a little over 10,000 acres of forested land) remained largely intact in this area for many years, they have been abused by over-cutting, promiscuous burning, over-grazing, and draining, all of which detract from their usefulness as a natural filter. Since 1970 drastic reductions of the hardwood Cypress community has occurred by the drainage of large areas of marsh for citrus production.

The value of mangrove forests to the marine ecosystem is well known. According to the distinguished ecologist, Dr. E. P. Odum of the University of Georgia, this interaction of land, sea, air and sunlight provides some of the richest food-producing areas in the world--20 times as productive per unit as the open sea, seven times as productive as an alfalfa field, and twice as productive as a field of corn!! Efforts should be continued to preserve the existing mangrove along the Indian River and expand it to the barren islands capable of supporting this growth. Some preliminary efforts at seed collection and restablishment are going on here and elsewhere in the state where this problem exists.

The Pelican Island Audubon Society has listed the ten major areas of Environmental and Human Concern in Indian River County. That list follows.

Areas of Environmental and Human Concern

1. Preservation and Protection of The Indian River Estuary, Including:

    a. Red and Black Mangrove swamplands
    b. Batis (pickleweed) marsh
    c. Submerged marine grass beds
    d. Spoil Islands
    e. Marshland functions
        (1) Marine productivity
        (2) Hurricane and storm protection
        (3) Wildlife feeding and nesting habitat
        (4) Pollutant filtration
        (5) Aesthetic values

2. Water Resources

    a. Shallow well aquifer
    b. Floridan aquifer
    c. Protection of recharge areas
    d. St. Johns River headwater marshlands

3. Water Pollution Abatement

    a. Sewage treatment plants
    b. Septic tanks and drainfields
    c. Canals and ditches
    d. Lakes, ponds, borrow pits
    e. Agricultural runoff
    f. Urban runoff
    g. Public health
    h. Tertiary treatment, land-spraying
    i. Sand-mining operations

4. Solid Waste Disposal

    a. Sanitary land fills
    b. Recycling
    c. Littering

5. Dune and Beach Protection and Restoration

6. Rare and Endangered Habitats

    a. Parklands
    b. Coastal forest hammocks
    c. Sand pine community
    d. Pine-flatwood community
    e. Freshwater marsh community

7. Noise Pollution

8. Air Pollution

9. Growth and Development Impact

    a. Environmental
    b. Economic
    c. Social

10. Development of Land-Use Policies and Ethics

Endangered and Threatened Wildlife in Indian River County

Endangered - Wildlife in this category are in danger of disappearing unless steps are taken to prevent this.

Birds: Wood Stork - A wetland inhabitant in marshes and water impoundments. In recent years 100-200 pairs have been nesting annually on Pelican Island.

Florida Everglade Kite - Not more than 100-150 of these freshwater marsh inhabiting birds survive in Florida. Several pairs have been found each spring in the St. Johns Water Management District reservoir west of Vero Beach, but overdrainage of this reservoir and subsequent loss of the Apple Snail--its sole food--has caused nesting failures.

Red-cockaded Woodpecker - Less than a half dozen birds occur in Indian River County, in a strip of Slash Pine forest along the upper reaches of the Sebastian River, southwest of Roseland. This species is dependent upon pines that have a fungus disease of the heartwood in which they excavate their nesting and roosting cavities.

Mammals: Florida Panther - Possibly one or two pairs of this rare carnivore, sometimes called a puma, or cougar, remain precariously in the wilder parts of Indian River County.

Manatee - Each winter several manatees are seen in the Indian River, especially in the warmer waters of the lagoon and canal near Vista Harbors and the outfall canal of the Vero Beach power plant. They are particularly vulnerable to injury by outboard motor propellers.

Reptiles: American Crocodile - This reptile is usually found only along the coastal areas of south Florida and the Keys, but a large 15-foot crocodile was found in 1974 in a pond at Vista Royale south of Vero Beach.

Atlantic Green Turtle - each year several females of this species come ashore to lay eggs on the beach.

Atlantic Saltmarsh Snake - one of the few snakes found in salt water. It is a harmless water snake and may be found inhabiting mosquito control impoundments on both sides of the Indian River.

Threatened - Wildlife not in imminent danger of extinction, but could become endangered if conditions worsen.

Birds: Brown Pelican - Indian River County probably has the largest concentration of Brown Pelicans in North America. Outside of Florida pesticides have seriously affected this species reproduction.

Magnificent Frigatebird - Occasionally seen over the Indian River and the beach and at Pelican Island. Considered threatened because its only nesting area in North America is on the Marquesas Keys near Key West.

Reddish Egret - One or two individuals are seen each year in the Indian River and at Sebastian Inlet. The last species to recover from the slaughter of the plume trade days.

Roseate Spoonbill - Several dozen or more of this species visit Indian River Cojnty during the spring and summer. Occasionally seen in larger drainage canals west of Vero Beach.

Osprey - Several breeding pairs found along the Indian River and at Blue Cypress Lake. More numerous in winter when northern birds are present.

Caracara - Only around 250 estimated to remain in Florida. One or two are sometimes seen in ranch areas in western parts of the county.

American Oystercatcher - Two, possibly three pairs nest on spoil islands in Indian River. Very intolerant of human disturbance.

Least Tern - Our smallest tern, here in summer only and often seen fishing in the surf. Dependent upon spoil islands and sand spits for nesting sites.

Florida Scrub Jay - Probably less than a dozen pairs remain in Indian River County in Sandpine-scrub oak communities near Donald MacDonald Park, Winter Beach-Gifford area along Old Dixie, and Whispering Palms area, south of Vero Beach. Dependent upon undisturbed scrub habitat.

Mammals: Florida Mouse - Found only in sandpine-scrub habitat on the Florida ridge.

Florida Beach Mouse - Although relatively common farther north, the destruction of beach dune vegetation in Indian River County has greatly reduced the numbers of this tiny, pale-brown mouse.

Round-tailed Muskrat - Found in freshwater marshes, but few remain in Indian River County because of overdrainage.

Reptiles: Gopher Tortoise - Although still frequently seen in our area, the destruction of Sandpine and Slash Pine Flatwoods habitat has greatly reduced their numbers.

Atlantic Loggerhead Turtle - Several hundred females nest each year on Indian River County beaches, but successful hatching is low because of predation by raccoons, disturbance by people and excessive beach erosion where man-made structures are too close to the beach.

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Heredity and environment interact to determine the characteristics of an organism and, therefore, a population.

Concept A — 1

The diversity of species and their adaptation to survival in specific environments result in a distribution that fills almost every available habitat and niche.

Concept B — 4

Organisms are adapted to live in a particular habitat with specific tolerance limits and those unable to adapt to the changes in environment become stressed to the point of extinction.

Conceptual Scheme II — 6

Living things and environments are in a continuous state of change.

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Storms or other physical phenomena cause sudden but natural changes in environments.

Concept B — 7

Political, economic, and social factors all influence the alteration of habitats.

Conceptual Scheme III — 13

As a population increases, its effects on the environment become more pronounced.

Concept A — 13

Human population size, like that of other organisms, will be limited by environmental controls. However, by the time the carrying capacity level for humans is reached, the quality of life will be very unpleasant.

Concept B — 16

Overcrowding leads to agressive or abnormal behavior.

Conceptual Scheme IV — 19

We live in a world of finite resources and almost infinite demands on those resources.

Concept A 19

Nature will maintain a balance between the number of men and the amount of material available to supply man's basic needs.

Conceptual Scheme V 22

Each individual has a role as an agent for change in the environment and, therefore, has a responsibility to the environment. This responsibility begins with learning as much as possible about the environment and appreciating its infinite variety.

Concept A 26

An attractive environment is important to the well being of man.

LEVEL - 7th grade

SUBJECT AREA - Language arts

CURRICULUM TOPICS:

Biography
Creative Writing
Journalism
Oral Communication
Poetry
Reading
(The) Short Story
Spelling

OVERVIEW: Conceptual Guides

Compiled by Cynthia Palmer

CONCEPTUAL SCHEME I

HEREDITY AND ENVIRONMENT INTERACT TO DETERMINE THE CHARACTERISTICS OF AN ORGANISM AND, THEREFORE, A POPULATION.

Concept A

The diversity of species and their adaptation to survival in specific environments result in a distribution that fills almost every available habitat and niche.

Activity 1

The "Short Story" or Reading

Have the students read aloud the filmstrip condensing Call of the Wild by Jack London. This story is about an Alaskan sled dog and how he adapts from one environment to another when he changes masters - a good example of "Survival of the Fittest." In discussion ask what people mean when they talk about "Survival of the Fittest." Then have the students write a short paragraph explaining how the dog, Buck, adapted to the changes in environments.

Activity 2

Oral Communication or Creative Writing

Discuss the term "natural selection" with your students. Present the following situations to the class:

1. A deer living in central Florida catches its right front leg in a fence as it was jumping. The leg is severely broken. Florida panthers are within its

range, and hunting season opens in one week. If the deer dies, what will happen, or if it survives what might happen?

2. A large ship is equipped with the provisions and medical supplies for 50 people. The cruise will last 5 years. The 50 people include 10 older people, 10 invalids, 10 middle-aged persons, 10 young adults and 10 children. The middle-aged group includes doctors and nurses. At the end of five years time, what results might you expect in regard to the numbers of people remaining in each group.

3. An identical ship also is going on the same cruise, but it is only due to last 1 month. Somehow it becomes lost and loses power to move. They have the same distribution of people, also enough food to last for several years, but only a limited amount of medicine. At the end of 5 years the ship is found. How might the population of this ship be different from the ship in question 2?

Each student is to explain what he thinks would happen in each situation.

Activity 3

Oral Communication or Creative Writing

Before giving the students any further information on the activity, instruct each student to collect 3 pieces of litter from the school grounds. Tell them they will be

Scheme I - A

Activity 3 (cont.)

used for an activity in the classroom, but give them no further direction. Have them spread all three (3) pieces before them on their desks. Now inform them that each student is a space scientist who has landed on a strange planet. The planet is in one of its long night periods which might last many earth weeks. Observation is impossible due to darkness. Your ship's robots have scanned the area and returned with only the three (3) pieces of litter they have before them. The three (3) items have indicated to you that there is life on the planet.

Problem:

Each student should concern himself with his own three pieces of litter. Assuming no more information than the litter provides, draw as many conclusions as to the size of the species; what they might look like; what they eat, drink; where they live; what is their level of intelligence; do they have eyes?

Activity 4

Creative Writing

Write to animal protection agencies such as the Humane Society or the American Society for the Prevention of Cruelty to Animals (A.S.P.C.A.) to find out what is being done to reduce the cat and dog population in urban areas. Find out why it is necessary from a humane standpoint. A source of additional information could be: veterinarians (local) and

Scheme I - A

Activity 4 (cont.)

newspaper articles. To extend the concept find out how many more people could be fed if the animal population were reduced. (Answer: nearly 1/3 more people could be fed.)

Activity 5

Reading

(This is a controversial activity. Use care.)

For this activity the following book will be used:

Swarthout, Glendon. Bless the Beasts and the Children. New York: Doubleday & Co. 1970.

The teacher should read excerpts from the book, Bless the Beasts and the Children, on the shooting of buffalo (necessary to reduce overpopulation). Ask the students to comment on the method used. Have the students give their reaction to the story.

Concept B

Organisms are adapted to live in a particular habitat with specific tolerance limits and those unable to adapt to the changes in environment become stressed to the point of extinction.

Activity 1

Creative Writing

Have the students describe by means of an essay what their life would be like if they and their polar bear friends were suddenly transported to an uninhabited island near the coast

Scheme I - B

Activity 1 (cont.)

of South Florida. They should consider:

1. How might their diet be changed?
2. How might their mode of transportation be changed?
3. How might their comfort due to temperature be changed?
4. How might the relationship between polar bears change?
5. How would the change affect the polar bears physically?
6. Do the students believe that they could survive or would they finally die off? Would the polar bears survive or die?
7. What do they feel would be the reason for the death of the polar bears?

CONCEPTUAL SCHEME II

LIVING THINGS AND ENVIRONMENTS ARE IN A CONTINUOUS STATE OF CHANGE.

Activity 1

Creative Writing

Give students the following paragraph to read. Tell them it is the beginning of a letter to a friend who used to live next door to them. The friend moved to another city several years ago. The students are to finish the letter:

Dear Joe,

I am glad to hear you like your new school. Your friend, Sam, sounds neat.

Things sure changed around this town since the new jet airport was built.....

1. The teacher might suggest other factors that could change the environment of a town, such as land development, new interstate highway, large manufacturing plant, or, as on our beach, a new bridge access, and water development.
2. How do these things affect the people who live in these areas? Suggest that it could affect living facilities, rise in prices, crowded roads, bring new stores, create jobs, create a shortage of public utility services, destroy recreational facilities or bring new ones, and create crowded schools.

Scheme II - A

Activity 2

Creative Writing

Take your class outdoors and have the students select a part of nature such as a leaf, piece of bark, blade of grass, an ant, work, a tree, a bush, etc. to write about. Give this stipulation to the students: They must start their paragraphs with, "It is awful being a _____," or "It is wonderful being a _____." Give the example to get the students started: "It is awful being a bush in the parking lot because the exhaust fumes from the cars wither my leaves."

Concept A

Storms or other physical phenomena cause sudden but natural changes in environments.

Activity 1

Journalism

In Adventures for Readers, have students read the television play, "The Big Wave," p. 44.

Have the students write a news article covering the disaster which occurred in the play. The students would imagine themselves as reporters of the incident.

Concept B

Political, economic, and social factors all influence the alteration of habitats.

Scheme II - B

Activity 1

Oral Communication

Have the class play a simulation game where the students role play different members of the community.

Divide the class into the following groups (if there are more than 25 students in the class, add another county commissioner, homeowner, gas station owner, etc.):

6 county commissioners
2 gas station owners
2 businessmen
1 banker
5 homeowners
2 motel owners
1 wildlife specialist
2 land developers
1 highway engineer
2 truckers
1 drive-in restaurant owner

After dividing the class into groups, present the following information and directions to them:

1. The county commissioners must listen to all sides of the argument. They must try to make a decision based on the facts presented to them.
2. Each student must try to act and think as if he were really the person he is playing.
3. The county commissioners will be in front of the room and the other student players must present their arguments to the commission. Any role that has more than one student must elect a representative to present their point of view to the commission.
4. The players must read the policy statements given to them and base their arguments on those policy statements.

Scheme II - B

5. No one should show his policy statement to anyone else-this is important. It works best to mimeograph copies of the issue and the policy statements.

The ISSUE:

A corporation of landowners that live out of state own a five mile section of beach property. This property has no buildings on it and is still in its natural condition. The county owns three beaches that are used by the public. The beaches are not currently overcrowded, but overcrowding is expected in five years. The landowners want two million dollars for the property. The issue is whether the county should buy the beachfront property. The only way the property can be purchased is by raising taxes.

POLICY STATEMENTS (Give one statement to each player):

County Commissioner

As a commissioner you must try to be fair-minded and consider all aspects of the issue. If you raise taxes to buy land, you will lose votes the next time you run for the county commission. You will also gain some votes if you support the land purchase. You will lose campaign contributions from wealthy land developers if you vote to buy the land.

Gas Station Owner

You own a gas station near the beach area. If the area is developed, you will gain several new customers who will rely on you, not only for gas, but for service on their cars as well. If the county buys the land you will also gain new gas

customers, but it will take two years for the beach to be ready for public use.

Businessman

You own a small business near the beach area. If the area is developed, you will gain customers. If the beach is bought by the county, you will probably not gain any new customers.

Banker

If the beach is developed, you will gain much business on property and home loans. If the county buys the beach, you will not gain any business.

Homeowner

You and your family enjoy going to beaches for recreation If the county buys the beach, your property taxes will go up because your tax money will be used to buy the land. If the land is developed, your taxes will still go up but you will not be able to use the beach for two years.

Motel Owner

You have a motel on a highway near the beach property. If the land is developed or bought by the county, you will gain customers.

Wildlife Specialist

If the Property is developed, the plants and animals that live near the beach will probably die. If the beach is bought by the county, most of the plants and animals will remain in the area.

Scheme II - B

Land Developer

You can buy the beach property for two million dollars and in ten years the land will be worth five million dollars. Your company will make millions of dollars by selling the land to homeowners.

Highway Engineer

No matter who buys the land, a new highway will have to be built going to the beach area. This highway will cost 1/2 million dollars. It is your job to make certain the county commissioners know the facts.

Trucker

If the land is developed, you will gain much money since the developers will need many things hauled to the area. If the county buys the land, you will not gain money. You and your family enjoy going to the other beaches in the county.

Drive-in Restaurant Owner

No matter who buys the land, your drive-in business will increase, since you have the only restaurant in the area.

Each of the special interest groups should present their arguments to the commissioners. After they have finished, the commissioners vote on the issue.

Is there any hope that we will ever purchase lands for the public?

Scheme II - B

Activity 2

Creative Writing or Oral Communication

If you could be one of the following people for six months what would you do about pollution?

President of the United States
Mayor of Vero Beach
Governor of Florida
President of the Beach Board of Realtors

Write at least two paragraphs expressing your thoughts on these matters. Is there any reason why these people do not do these things? Is there any way to make them do the right thing? Who can decide what is right or wrong?

CONCEPTUAL SCHEME III

AS A POPULATION INCREASES, ITS EFFECTS ON THE ENVIRONMENT BECOME MORE PRONOUNCED.

Concept A

Human population size, like that of other organisms, will be limited by environmental controls. However, by the time the carrying capacity level for humans is reached, the quality of life will be very unpleasant.

Activity 1

Oral Communication or Creative Writing

Keeping in mind that the population is constantly increasing and that overcrowding leads to a quality of life that is unpleasant, ask students to answer these questions, either in discussion or by written assignment.

1. What is your definition of the often heard phrase "population explosion"?
2. How would you feel if there were so many people in this room that you could not move or turn around? In this situation, would you be tempted to push or shove?
3. Can overcrowding result in an increase of crime or agressive behavior?
4. Why is crime rate higher in crowded areas?
5. Do you think that the crime rate in large cities will ever come down?
6. How could you keep crime rates down without more policemen?

Scheme III - A

Activity 2

Oral Communication

Mark off an area of 6 feet square in the classroom. Have one student enter the space. At intervals of one minute add students to the area in the manner of geometric progression (representing population growth: 1, 2, 4, 8, 16, etc.). No student should be in contact with any other student inside the area. Continue until no more students can enter the area. (Note that as the population of this area increased, each student has less space available for himself.)

Begin a class discussion with such questions as:

1. How long did it take to fill the area?
2. Is there a limit to what the world population can safely become?
3. Do you think tension increased as more students entered the space? Why?
4. Does this exercise accurately depict the real environment? Why not? Where would the people get their food if they were standing on all the available ground? How much space does each person really need to satisfy his basic needs?

Activity 3

Poetry

Read "Apartment House" from Reflections on a Gift of Watermelon Pickle (Edited by Stephen Dunning, Edward Lueders, and Hugh Smith. New York: Lothrop, Lee & Shepard Co., Inc. 1967.) p. 39.

Scheme III - A

Activity 3 (cont.)

1. What two metaphors are used in this poem?
2. Why have apartments become more numerous?
3. If you have ever lived in an apartment, write a paragraph telling what you like about it or not like about it?
4. If you have not lived in an apartment, write a paragraph telling what you think you would like or dislike about it?

Activity 4

Oral Communication

Have a group of students compose a skit with the basic theme, "Too Many People Live Here." Have them include the problems in everyday life that they encounter (competition for food, materials, space, water, etc.)

Activity 5

Creative Writing

Give the students the following situation: "The year is 2001 and there are over two million people in the Vero Beach area." Have the students write about what the area would be like in the year 2001. Then have the class pretend they are grown-up and it is the year 2001. Now they should write about what the area looked like in 1975 when they were children. Discuss the stories and ask how some of the harmful things could be avoided.

Scheme III - B

Concept B

Overcrowding leads to agressive or abnormal behavior.

Activity 1

Oral Communication or Creative Writing

The basic needs of men and animals seem to be approximately the same. These needs include a suitable living area, freedom from stress, a stable reproductive process, and territory. Have your students consider the plight of a caged animal. Few animals adapt readily to this condition. If there are students in the class who have visited zoos, begin with a discussion of what they saw there. Ask students to consider their pet dog or cat being caged for 24 hours a day.

Discuss a "caged" man. Such things as crowded freeways, busy shopping centers, overused recreation areas, or job cut-backs may serve to trap a human being.

1. What other factors can you think of which tend to "cage" man?
2. What adjustments or avenues of escape can man exercise to insure his well-being and survival that lower animals cannot make or use?

Scheme III - B

Activity 2

Oral Communication

Choose a four (4) member panel group. Have them research the crime rate, suicide rate and psychological disorders in man from 1960-1970. Have them explain the types of crimes committed and present their findings to the class. Tell the rest of the class to prepare at least one question each to pose to the panel on man's adaptation to our highly specialized life. Data may be obtained from the State Health Department.

Activity 3

Oral Communication

Divide the class into discussion groups of twos. Hand out mimeograph copy of the student activity sheet and have the groups discuss the questions after they have each put their own thoughts on the activity sheet. (See STUDENT ACTIVITY SHEET on the following page.)

Activity 4

Creative Writing

Have students imagine being in a small cardboard carton with at least five (5) other people near them constantly. Have them write down what their true feelings would be toward these people.

Scheme III - B

STUDENT ACTIVITY SHEET - Activity 3

Aggressive Behavior

1. Name as many things as you can think of that make you mad.

   A.

   B.

   C.

   D.

   E.

   F.

   G.

   H.

2. How many of these things that make you mad involve other people?

3. If you and your family suddenly had to move in with other families, would your family live happier with one other family or two other families?

4. If you volunteered to stay in this classroom for 2 weeks, all day and all night, would you rather stay with 0, 1, 5 or 10 other people? Which number group would you least prefer to stay with?

5. List 4 or more reasons for or against living in these groups:

0 others	1 other	4 others	9 others
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.

6. In which group do you think the most things would happen to make you mad? Why?

7. What would happen at the end of the first week if an additional 10 people were put into the room?

8. If arguments or fights broke out, would you try to stop them? If so, why and if not, why?

9. Do you think it would reach a point where you might like to fight or maybe have to fight to protect yourself?

10. How is the problem of overcrowding in this situation similar to that

CONCEPTUAL SCHEME IV

WE LIVE IN A WORLD OF FINITE RESOURCES AND ALMOST INFINITE DEMANDS ON THOSE RESOURCES.

Concept A

Nature will maintain a balance between the number of men and the amount of material available to supply man's basic needs.

Activity 1

Creative Writing

Tell the students they all own 5 feet of the beach. Have them write a paragraph on what they would do with it. Then tell them people are moving into the area and 2 feet of land will be taken away from their five. Have them write a second paragraph expressing their feelings about this action. Next, one more foot is taken away from each student due to more babies being born in the beach community. In this last paragraph have them write what they would do about this last action.

Activity 2

Oral Communication

We are told that there has been a "population explosion." At the same time, money for schools has been cut. This results in overcrowded classrooms and not enough teachers. Let us suppose that the school board ran out of money and had to limit the size of classes.

Scheme IV - A

Activity 2 (cont.)

1. How would you decide which two students would be selected and which eliminated from each class? (Let students come up with methods.)
2. Would you select them by chance, by the drawing of straws?
3. Should anyone who is a discipline problem be eliminated?
4. Should the smartest students be eliminated since they have the most knowledge?
5. Are classrooms and education valuable resources?

Activity 3

Oral Communication

With a string mark off a large area (10' x 10') in the classroom. Populate this area with four (4) students. The area represents a spaceship and the students act as astronauts. These students travel to the planet Mars and find four (4) marooned men from a previous flight. The marooned men then board the spaceship. The astronauts should be aware of the following:

The ship supplies the four (4) original astronauts with the following for their 100 day return trip:

1. 1 1/2 lbs. of food per day
2. 2 gallons of water per day (to be recycled after use for the next day)
3. Oxygen supply - 2 lbs. per day (recycled daily)
4. Space for sleep and exercise in addition to their control seats.

Scheme IV - A

Activity 3 (cont.)

The weight of the four (4) added astronauts will have no effect on the ship as previous supplies are consumed and exploration equipment will be left behind.

Before beginning the game, have all eight (8) astronauts leave the room and inform the remainder of the class they are to observe and list all aggressive behavior exhibited by astronauts concerning food, water, oxygen, and space. The eight (8) astronauts will have to determine how they will survive on the return trip with the available supplies.

After the role-playing presentation is made, have the class discuss the reactions of the astronauts. Would the eight (8) astronauts be able to survive the 100 day trip?

CONCEPTUAL SCHEME V

EACH INDIVIDUAL HAS A ROLE AS AN AGENT FOR CHANGE IN THE ENVIRONMENT AND, THEREFORE, HAS A RESPONSIBILITY TO THE ENVIRONMENT. THIS RESPONSIBILITY BEGINS WITH LEARNING AS MUCH AS POSSIBLE ABOUT THE ENVIRONMENT AND APPRECIATING ITS INFINITE VARIETY.

Activity 1

Spelling and Vocabulary Building

Have students find definitions for these words:

Population
Ecology
Environment
Conservation
Tenement
Job Pressure
Peer Pressure
Rush Hour
Traffic
Urban
Rural
Suburban
Stagnant Air
Garbage
Overusage
Depression
Aggression
Stress
Pollution

Activity 2

Letter Writing

Write letters to various environmental organizations asking for information on ecology and conservation. Addresses for these organizations are available in the paperback:

A Golden Guide to Environmental Organizations
Edited by Bruce W. Halstead, M.D.
Golden Press
New York ($.95)

Names and addresses of International organizations, Federal State and Independent agencies are listed in this book.

Scheme V

Remember the local agency:

Pelican Island Audubon Society
P.O. Box 1833
Vero Beach, Florida, 32960.

Activity 3

Creative Writing

Show the film(s) available from the Indian River County Instructional Media Center:

"Pelican Island" (Cat. #3.054)
or
"Moods of the Arctic" (Cat. #1.215)

Use these films to motivate writing activities.

Have the students write a descriptive composition on what they saw in the film.

Activity 4

Poetry

Have students keep a poetry notebook of nature-oriented poems, either of their own origin or poems that they have found relevant to ecology. Haiku is a verse form closely related to the visual experience of nature.

Activity 5

Journalism

Have the students keep a newspaper scrapbook of all articles which they can find concerning ecology and conservation.

Scheme V

Activity 6

Journalism

Have the students write a letter to the editor of a newspaper concerning an ecological subject (littering, beach erosion, etc.) which they do not have to mail. Then have the student write two editorials. One editorial should answer their letter in a favorable manner. The second editorial should be written from the opposing point of view.

Activity 7

Biography

Include in the class studies books and films which deal with the lives of Americans who have contributed to the awareness of environmental concerns. Such individuals as the following could be considered.

John James Audubon
Rachael Carson
John Muir
Dr. Paul R. Ehrlich
Margaret Sanger

Biographies which could be considered are listed below:

Lader, Lawrence and Milton Meltzer. Margaret Sanger: Pioneer of Birth Control. New York: Thomas Y. Crowell Company, 1970.

Sterling, Philip. Sea and Earth: The Life of Rachael Carson. New York: Thomas Y. Crowell Company, 1970.

Swift, Hildegard Hoyt. From the Eagle's Wing: A Biography of John Muir. New York: William Morrow and Co., 1962.

Norman, Charles. John Muir: Father of our National Parks. New York: Julian Messner, 1957.

Scheme V

The following films might be considered:

1. "Audubon." 58 min., sd., color.
   NSC-1200. p. 188. $18.00.

2. "Audubon and the Birds of America."
   16 min., sd., color.
   RSC-446. p. 189. $7.50.

For the above consult the Indiana University film rental catalog: Educational Motion Pictures
Audio-Visual Center
Office for Academic Affairs
Indiana University
Bloomington, Indiana.

Activity 8

Poetry

Study nature with cinquain poetry. Cinquain poetry emphasizes syllabic form and is similar to Haiku. Cinquain has five lines. Each line has a specific number of syllables and specific purpose: line one is a title containing two syllables; line two is a description of the title in four syllables; line three tells of action in three syllables; line four gives a feeling in eight syllables; line five uses another word picture for the title in two syllables. This type of poetry lends itself beautifully to the study of objects or organisms in nature. Students can write cinquain poetry, and in so describe or define natural subjects. Below is an example of Cinquain:

Sandspur
Rounded, pointed
Sticks tightly to the flesh
You miserable curse of beast
Painful

Scheme V - A

Species of animals would serve as a useful topic source. Those students especially motivated could research extinct or endangered species and use that information in their cinquain poetry. Students should be encouraged to illustrate their original poetry.

Concept A

An attractive environment is important to the well being of man.

Activity 1

Creative Writing.

Conduct a class exercise in which each student expresses his feelings for his natural surroundings through creative expression. They may write prose or a poem and accompany their written work with a painting, poster, diorama, collage or mobile.

Activity 2

Creative Writing

Assemble a notebook collection of man's efforts to artistically represent a theme from nature. With trees as a theme, students could enhance their notebooks with appropriate songs, famous paintings, poems or prose. Students should try to collect from library sources as much as would be appropriate for their topic. Then they should try to produce a poem or story of their own which would accompany the theme.